

Claims

1. A device for fabricating anisotropic films from liquid-crystalline solution of organic and/or inorganic materials on at least one substrate, comprising:
 - at least one means of supplying said liquid crystal solution,
 - a first means providing orienting action to the solution and/or molecules and/or supramolecular complexes of said solution,
 - at least one solution-directing element implemented as a plate for receiving the solution onto the substrate at said first means for providing orienting action to the solution, and
 - means for providing relative movement between said substrate and said first means and said solution directing element.
2. A device according to the claim 1, wherein the plate is flat and installed at an angle from 0° to 90° to the plane of the substrate holder.
3. A device according to the claim 1, wherein at least a part of the plate includes a cylindrical surface.
4. A device according to any of claims 1, 2 or 3, wherein in the direction that is perpendicular to the direction of relative movement the dimensions of the plate are larger than the dimensions of the width of the forming film.
5. A device according to any of claims 1, 2 or 3, wherein at least a part of the plate possesses hydrophilic or hydrophobic properties.
6. A device according to any of claims 1, 2 or 3, wherein at least a part of the plate surface features a relief.
7. A device according to any of claims 1, 2 or 3, wherein the plate is made out of a polymer material.
8. A device according to any of claims 1, 2 or 3 wherein the plate is made of rubber.
9. A device according to any of claims 1, 2 or 3 wherein the plate is made of two different materials.

10. A device according to any of claims 1, 2 or 3, wherein the first means providing aligning action comprises a cylindrical rod or roller or doctor blade.

11. A device according to claim 10, wherein the first means providing orienting action comprises at least one additional plate, one end of which is fixed such that during motion of the additional plate relative to the substrate holder at least a part of the surface of the additional plate is freely translating over the substrate surface immediately after the main means of orienting action.

12. A device according to any of claims 1, 2 or 3, wherein the surface of said first means providing orienting action includes a surface relief.

13. A device according to any of claims 1, 2 or 3, wherein the device additionally includes means for removing solvent from the film.

14. A device according to the claim 13, wherein the means for removing solvent from the film is implemented as a heating element and/or a radiating unit installed such as to provide processing of at least a part of the substrate surface.

15. A devices as in claim 13 wherein the device for removing solvent from the film is implemented as a blower.

16. A device as in claim 13 wherein the device for removing solvent from the film is implemented as a radiating unit.

17. A device according to any of claims 1, 2 or 3, wherein it is additionally equipped with at least one anti-vibration means.

18. The method of fabricating an anisotropic film on a substrate from a liquid-crystalline solution of organic and/or inorganic materials comprising the steps of:
supplying the liquid crystalline solution on the surface of a solution-directing element,
allowing the solution to flow along the surface of the solution-directing element onto the surface of the substrate,
translating the substrate relative to the solution-directing element, and

subjecting the solution on the substrate to an orienting influence as the substrate is translated.

19. The method of claim 17, wherein the film is dried.

20. The method of claim 18 or 19, wherein the solution-directing element is placed at such distance from the substrate and the orienting element such that the solution flows laminarly onto the substrate.